



NAVAL
POSTGRADUATE
SCHOOL



WISC

*Systems Engineering Distance Learning
Education Summit*

17 February 2021

by

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Welcome to our Education Summit



- Stackable Certificates
- Summer 2021 Program Offerings

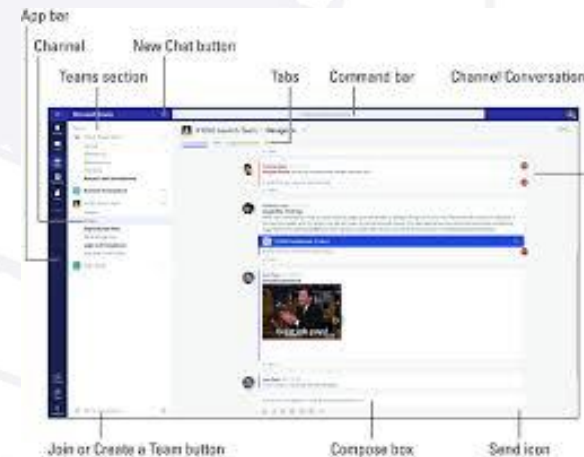
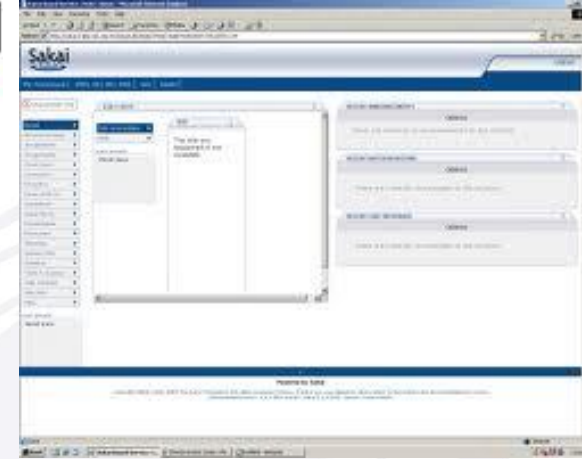


SE Distance Learning Programs

- For organizations with a strategic vision to provide world-class systems engineering, systems integration and systems engineering management services
- Recognized as a leader in field of distance learning (DL)
- Each DL course offer as one continuous (3) hour web-conferencing session one day per week (times/days vary)
- All web-conferencing sessions are recorded
- Typical certificate program offered as one course per quarter (4 total) consecutively over four quarters
- Typical degree program offered as two courses per quarter (16 total) over eight consecutive quarters or as four stackable certificates
- All SE and SEM programs accredited by WASC and MSSE degree also accredited by ABET



- Collaborative Learning Environment
 - Sakai web-based courseware
- Multiple Teaching Types for DL Education
 - Synchronous/Asynchronous Web Browser Based
 - *Zoom for Gov and/or MS Teams* used for teaching synchronously
 - Video, Voice, Chat, Desktop Sharing
 - *Sakai* used for teaching asynchronously
- SE Computer Lab Available Worldwide
- NPS Library Resources Available Worldwide
 - Books, Journals, Databases all on-line
- On-Site Face-to-Face Classrooms
 - Classroom facilities located in Washington, DC (Pax River, MD) and San Diego, CA





Stackable Certificate Overview

- The SE Department has partitioned its DL program offerings into stackable certificates
- Stackable certificates enhances the value proposition:
 - Sponsors can fund only those academic certificates for which they have an immediate need
 - Students will be able to earn a MS degree by stacking together academic certificates
- Supports Navy advanced education strategic plan and the new Engineering & Technical Management (ETM) functional area competency framework
 - Offers a customization approach to provide systems engineering and systems engineering management advanced education options for workforce development
 - Provides a graduate degree path for students that have earned certificates from other departments or schools



- 282 Systems Engineering (Fundamentals)
- 232 Lead Systems Integration (Domain Specialty)
- 242 Reliability & Maintainability Engineering (Domain Specialty)
- 130 SE Capstone (SE Advanced)
- 131 Systems Capability & Design (SE Core)
- 132 System of Systems Engineering (Domain Specialty)
- 133 Model-based Systems Engineering (Domain Specialty)
- 134 Aviation Systems (Domain Specialty)
- 135 Systems Test & Evaluation (Domain Specialty)
- 136 Directed Energy Systems (Domain Specialty)
- 137 System Safety Engineering (Domain Specialty)
- 138 Digital Engineering (Domain Specialty)
- 170 SEM Capstone (SEM Advanced)
- 171 Systems Integrated Development (SEM Core)
- 172 Systems Technology & Advancement (Domain Specialty)



Stackable Cert lead to Degree

- SE offers DL graduate certificates and degree programs that are tailorable to sponsors and their students
- Stackable certificates can meet master's degree curricula requirements leading to MSSE, MSES or MSSEM degrees
- Certificates are identified by tiers and are typically taken in sequence but may vary by certificate
- Each tier certificate can be tailored dependent on the ultimate curricula (311 or 711) and degree desired

Tier I SE Fund Cert pick one	Tier II SE/SEM Core Cert pick one	Tier III SE/SEM Domain Cert pick one	Tier IV SE/SEM Cap Cert pick one
4 Courses	4 Courses	4 Courses	4 Courses



Stackable Certificate 311 Design

Qtr	Yr/Qtr	Course Title	Course Title
1		Fundamentals of Systems Engineering	Probability and Statistics for SE
2		Fundamentals of Engineering Project Management	Capability Engineering
3		System Suitability	Engineering Economics and Cost Estimation
4		SE CERT Focus Course and/or Elective	Systems Architecting and Design
5		SE Domain Specialty Track	System Integration and Development
6		SE Domain Specialty Track	SE Capstone Project- I
7		SE Domain Specialty Track	SE Capstone Project- II
8		SE Domain Specialty Track	SE Capstone Project- III

282
 Systems Engineering Certificate
 131
 System Capability And Design Certificate
 130
 Systems Engineering Capstone
 Various Domain Speciality

Tier I SE Certificate	Tier II SE Core Certificate	Tier III SE Domain Certificate	Tier IV SE Capstone
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Stackable Certificate 711 Design

Qtr	Yr/Qtr	Course Title	Course Title
1		Fundamentals of Systems Engineering	Intro to Digital Engineering with Model-Based System Engineering
2		Fundamentals of Engineering Project Management	Probability and Statistics for HSI
3		System Suitability	Engineering Economics and Cost Estimation
4		SE CERT Focus Course and/or Elective	Human Factors in Systems Design
5		SEM Domain Specialty Track	Risk Analysis & Management of Engineering Systems
6		SEM Domain Specialty Track	Modeling & Simulation in Acquisition
7		SEM Domain Specialty Track	SEM Capstone Project- I
8		SEM Domain Specialty Track	SEM Capstone Project- II

282
Systems Engineering Certificate

171
System Capability And Design Certificate

Various
Domain Speciality

170
SE Management Capstone

Tier I SE Certificate	Tier II SEM Core Certificate	Tier III SEM Domain Certificate	Tier IV SEM Capstone
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311 Degree Curriculum – Summer 2021

Systems Engineering Non-Resident Master's Degree, Systems Test & Eval Focus

Commencing Tuesday, 6 July 2021

Program Delivered via Distance Learning

Sponsor Code: Open Enrollment (311-2140)

Course Lineup

Qtr	Year/Qtr	Course Title	
1	AY21/Summer	SE3100 Fundamentals of Systems Engineering	OS3180 Probability & Statistics for SE
2	AY22/Fall	SI3400 Fundamentals of Engineering Project Mgmt	SE3250 Capability Engineering
3	AY22/Winter	SE3302 System Suitability	SE3011 Engineering Economics & Cost Estimation
4	AY22/Spring	SE3304 Rapid Prototyping for the Warfighter	SE4150 Systems Architecting & Design
5	AY22/Summer	OS3401 Human Factors in Systems Design	SE4151 System Integration & Development
6	AY23/Fall	SE4003 Systems Software Engineering	SE3201 Engineering Systems Conceptualization
7	AY23/Winter	SE4353 Risk Analysis & Mgmt for Engineering Sys	SE3202 Engineering Systems Design
8	AY23/Spring	SE4354 Systems Verification & Validation	SE3203 Eng Systems Implementation & Operation

SE Certificate
Course

SE Core Course

SE Domain
Focus

SE Capstone
Project

Application Deadline: 29 March 2021



711 Degree Curriculum – Summer 2021

Systems Engineering Management with Systems Program Management Focus

Commencing Wednesday 7 July 2021

Program Delivered via Distance Learning

Sponsor Code: Open Enrollment (711-214P)

Course Lineup

Qtr	Year/Qtr	Course Title	
1	AY21/Summer	SE3100 Fundamentals of Systems Engineering	SE3050 Intro to Digital Engineering & MBSE
2	AY22/Fall	SI3400 Fundamentals of Engineering Project Mgmt	OS3111 Probs & Stats for Human Systems Integration
3	AY22/Winter	SE3302 Systems Suitability	SE3011 Engineering Economics & Cost Estimation
4	AY22/Spring	SE4980 Enterprise Systems Engineering	OS3401 Human Factors in Systems Design
5	AY22/Summer	SE3910 System Evolution & Tech Assessment	SE4353 Risk Analysis & Mgmt of Engineering Systems
6	AY23/Fall	SEM Technical Elective (TBD)	SE4420 M&S in Acquisition
7	AY23/Winter	SE4520 System Manufacturing, Dev & Production	SE3211 Systems Engineering Management Capstone I
8	AY23/Spring	SE4012 Mgmt of Advanced Systems Engineering	SE3212 Systems Engineering Management Capstone II

SE Certificate Course	SE Core Course	SE Domain Focus	SE Capstone Project
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Application Deadline: 29 March 2021



Systems Engineering Certificate with Rapid Prototyping Focus Commencing on Tuesday, 6 July 2021*

Program Delivered via Distance Learning

Sponsor Code: Open Enrollment (282-2140)

Course Lineup		
Qtr	Year/Quarter	Course Title
1	AY21/Summer	SE3100 Fundamentals of Systems Engineering (3-2)
2	AY22/Fall	SI3400 Fundamentals of Engineering Project Management (3-2)
3	AY22/Winter	SE3302 Systems Suitability (3-2)
4	AY22/Spring	SE3304 Rapid Prototyping for the Warfighter (3-2)

Application Deadline: 29 March 2021



Systems Engineering Certificate with Enterprise Systems Engineering Focus

Commencing Wednesday 7 July 2021*

Program Delivered via Distance Learning

Sponsor Code: Open Enrollment (282-214P)

Course Lineup		
Qtr	Year/Quarter	Course Title
1	AY21/Summer	SE3100 Fundamentals of Systems Engineering (3-2)
2	AY22/Fall	SI3400 Fundamentals of Engineering Project Management (3-2)
3	AY22/Winter	SE3302 Systems Suitability (3-2)
4	AY22/Spring	SE4980 Enterprise Systems Engineering (4-0)

Application Deadline: 29 March 2021



Systems Capability and Design Certificate Commencing Thursday 8 July 2021*

Program Delivered via Distance Learning

Sponsor Code: OPEN Enrollment (131-2140)

Course Lineup		
Qtr	Year/Quarter	Course Title
1	AY21/Summer	OS3180 Probability and Statistics for Systems Engineering (4-1)
2	AY21/Fall	SE3250 Capability Engineering (3-2)
3	AY22/Winter	SE3011 Engineering Economics and Cost Estimation (3-0)
4	AY22/Spring	SE4150 System Architecture and Design (3-2)

Application Deadline: 29 March 2021



Systems Integrated Development Certificate Commencing Friday, 9 July 2021*

Program Delivered via Distance Learning

Sponsor Code: OPEN Enrollment (171-214P)

Course Lineup		
Qtr	Year/Quarter	Course Title
1	AY21/Summer	SE3050 Introduction to Digital Engineering with Model-Based Systems Engineering (3-2)
2	AY21/Fall	OS3111 Probability and Statistics for Human Systems Integration (4-0)
3	AY22/Winter	SE3011 Engineering Economics and Cost Estimation (3-0)
4	AY22/Spring	OS3401 Human Factors in Systems Design (3-1)

Application Deadline: 29 March 2021



Certificate in Systems Safety Engineering Commencing Wednesday, 7 July 2021*

Program Delivered via Distance Learning

Sponsor Code: OPEN Enrollment (137-2140)

Course Lineup		
Quarter	Year/Quarter	Course Title
1	AY21/Summer	SE4353 Risk Analysis & Management for Engineering Systems (3-2)
2	AY22/Fall	SE3321 Reliability Management and Data Systems (3-2)
3	AY22/Winter	SE4003 Systems Software Engineering (3-2)
4	AY22/Spring	SE4101 Systems Safety Engineering (3-2)

Prerequisite: SE certificate (282) or equivalent

Application Deadline: 29 March 2021



Certificate in Reliability & Maintainability Engineering Commencing Wednesday, 7 July 2021*

Program Delivered via Distance Learning

Sponsor Code: OPEN Enrollment (242-2140)

Course Lineup		
Quarter	Year/Quarter	Course Title
1	AY21/Summer	SE3302 System Suitability (3-2)
2	AY22/Fall	SE3321 Reliability Management & Data Systems (3-2)
3	AY22/Winter	OA4302 Reliability & Weapon System Effectiveness Measurement (4-0)
4	AY22/Spring	SE4321 Reliability Growth and Accelerated Testing (4-1)

Prerequisite: SE certificate (282) or equivalent

Application Deadline: 29 March 2021



Certificate in Systems Technology and Advancement Commencing Thursday, 8 July 2021*

Program Delivered via Distance Learning

Sponsor Code: Open Enrollment (172-214P)

Course Lineup		
Qtr	Year/Quarter	Course Title
1	AY21/Summer	SE4980 Enterprise Systems (4-0)
2	AY22/Fall	SE4420 Modeling & Simulation in Acquisition (3-2)
3	AY22/Winter	SE3910 System Development & Technology Evolution (4-0)
4	AY22/Spring	SE4503 Technology Planning & Replacement (3-2)

Application Deadline: 29 March 2021



Systems Engineering Capstone Certificate Commencing Thursday, 8 July 2021*

Program Delivered via Distance Learning

Sponsor Code: OPEN Enrollment (130-2140)

Course Lineup		
Qtr	Year/Quarter	Course Title
1	AY21/Summer	SE4151 Systems Development & Integration (3-2)
2	AY21/Fall	SE3201 Engineering Systems Conceptualization (2-4)
3	AY22/Winter	SE3202 Engineering Systems Design (2-4)
4	AY22/Spring	SE3203 Engineering Systems Implementation & Operations (2-4)

Application Deadline: 29 March 2021



SE Distance Learning (DL) Tuition Pricing

Open enrollment rate: AY21 open enrollment tuition rate is \$2500 per student per course w/o books. If NPS is expected to provide books then add \$200 fixed fee per course for the duration of program. Tuition rate applies to all SE certificate, master's degree and PhD programs. Tuition is required for any student enrolled in a course as of the first day of class.

Full sponsorship tiered fixed-price rate: Two tiered fixed-price options are offered to sponsors who make significant enrollment commitments. These options are offered as a result of reduced direct and variable costs associated with the commitments.

Cohort Pricing: The rate is \$2000 per course w/o books. Organization commits to sponsor and fund an entire cohort of a minimum of 25 seats (not to exceed 30 per cohort) in a DL program and agrees to assume student attrition below the fixed-price floor of \$50K. It is recommended that commands start with more than 25 students to minimize impacts of student attrition. If student enrollment drops to 24 or below, the price remains fixed at \$50K per course for the cohort for duration of the program.

Partner Pricing: The rate is \$2000 per course w/o books. Organization commits to sponsor and fund 50 or more seats across all DL programs. It is recommended that commands closely monitor the overall quarterly enrollment numbers to keep them at or above 50 seats. Should the student enrollment drop to 49 or below in any particular quarter, tuition will be fixed at the 50 seat rate. The command can then opt to revert back to open enrollment pricing or sponsor additional DL students in upcoming programs.

Short Courses: Various 1-3 day SE subject short courses are available not for graduate credit. The fixed price with book or handouts for 1-day is \$15K, 2-day is \$25K and 3-day is \$30K for up to 25 seats. **Special arrangements:** NPS prides itself on being responsive to the needs of the Department of Defense. Any organization requesting additional program features or other special arrangements should contact the Associate Chair DPO to negotiate pricing.



- Chair, SE Department: Ron Giachetti– regiache@nps.edu
 - 831-656-2670
- Associate Chair DPO: Wally Owen - wowen@nps.edu
 - Distance Learning, Director of Programs and Business
 - 831-402-6086
- Dep Assoc Chair MOE: Warren Vaneman - wvaneman@nps.edu
 - Distance Learning, Program Manager
 - 571-364-5126
- Education Technician: Heather Hahn - hlhahn@nps.edu
 - Academic administrative support for students and sponsors
 - 831-915-9581
- GEAC Student Support: - GEACStudCoord@nps.edu
 - Program support for students
 - 831-656-3579

***What to Expect from Us:
Availability, Help,
Advice, Action***

NAVAL POSTGRADUATE SCHOOL
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Systems Engineering DL Programs

A New Stackable Approach to Customization

SE Fundamentals 282 Certificate DL 4 quarters	SE/SEM Core Certs 103-SCD/107-SID DL 4 quarters	SE/SEM Domain Certs 232/242/130s/170s DL 4 quarters	Other Domain Certs Data Science/Others DL 4 quarters
3 + 1 focus course	4 courses	4 courses	4 courses
Project-based	Project-based	Project-based	Project-based
Stackable	Stackable	Stackable	Stackable
25-30 per cohort	25-30 per cohort	25-30 per cohort	25-30 per cohort
Tier I Fundamentals	Tier II Core	Tier III Domain	Tier III- Other Depts



Stackable Certificates Tier I- SE Fundamentals Tier II- SE/SEM Core Tier III- Domain Specialty Tier IV- Advanced Capstone	SE/SEM Capstone 130-SEC/170-SEMC DL 4 quarters 4 courses	SEM Masters 711/721/722 DL 8 quarters 16 courses	SE Masters 311/312 DL 8 quarters 16 courses	PhD in SE 582 Resident/DL 12 quarters 6 courses min
All curricula leading to a master's degree are designed for stackable certificate completion or can be taken as a full up DL degree program	Capstone Project Stackable 25-30 per cohort Tier IV Advanced	Thesis/Project Stackable Certs 25-30 per cohort ~200 students	Capstone Project Stackable Certs 25-30 per cohort ~200 students	Dissertation Tailored to each 3 per quarter ~15 students



Education

BS Naval Engineering (Management & Technology), USNA 1979
 MS Management (Financial Management), NPS 1992
 DPA Public Administration, Golden Gate University, 2003



NPS Experience

Faculty member since 1992
 GSDM, Meyer Institute, GSEAS Department of Systems Engineering

Teaching and Academic Service Experience

NPS- Acquisition, Financial, Performance and Program Management, Public Policy, Leadership
 USNA- LEAD program for Company Officers
 DAU- ACQ201, SYS201 and SYS301 (DAU early days road warrior)
 AA- 312 program and PO- 282, 242 and 721 programs



Associate Chair for DPO

Serve as PM for all DL programs oversee all DL functions
 Manage the business of distance learning
 Work closely with all NPS stakeholders and external sponsors



Active Duty Experience

Retired F4/F14 Naval Flight Officer
 WESTPAC Cruise, CV64 USS Constellation (F14)
 Around-the-World Cruise, CV43 USS Coral Sea (F4)
 Officer Programs Officer, NRD St. Louis
 Air Operations Officer, CVN65 USS Enterprise





▼ Education

- Ph.D., M.S., Virginia Tech (2002/1997) Industrial & Systems Engineering
- B.S., SUNY Maritime College (1986) Meteorology & Oceanography
- JPME Certificate, Naval War College (2009)

▼ NPS Experience

- Professor of Practice since 2012
- Research and teaching focus on System of Systems Engineering and Model-Based System Engineering

▼ U.S. Government Civilian Experience

- Director, International R&D
- Chief Architect
- Lead Systems Engineer
- Modeling & Simulation Lead

▼ Military Experience

- Retired U.S. Navy Reserve Captain
- Qualified Surface Warfare, Information Dominance Warfare & Space Cadre Officer
- MAJOR CAMPAIGNS & OPERATIONS: Desert Shield/Desert Storm, Enduring Freedom-Afghanistan, Operation Burnt Frost

